

## CLAIMS

1. A probiotic composition comprising at least two lactic acid bacterial strains, c h a r a c t e r i z e d  
5 in that said at least two lactic acid bacterial strains are able colonize the gastrointestinal tract of humans and animals and in combination have at least two beneficial properties, which are an intestinal survival property, an intestinal binding property, an infection protecting  
10 property, and a fiber fermenting property, said at least two lactic acid bacterial strains being selected from the group comprising *Lactobacillus plantarum* F5 (LMG P-20604), *Lactobacillus plantarum* F26 (LMG P-20605), *Lactobacillus plantarum* 2592 (LMG P-20606), *Pediococcus penosaceus* 16:1  
15 (LMG P-20608), and *Leuconostoc mesenteroides* 77:1 (LMG P-20607), *Lactobacillus plantarum* 50:1 (P-20609), and *Lactobacillus paracasei* (paracasei) F19 (LMG P-17806).

2. A probiotic composition as in claim 1, c h a r - a c t e r i z e d in that said lactic acid bacterial  
20 strains are viable bacteria of at least  $10^{10}$  CFU/g.

3. A probiotic composition as in claim 1, c h a r - a c t e r i z e d in that said intestinal survival property is ability to grow in the presence of bile.

4. A probiotic composition as in claim 1, c h a r - a c t e r i z e d in that said intestinal survival  
25 property is ability to survive at a low pH.

5. A probiotic composition as in claim 4, c h a r - a c t e r i z e d in that said ability to survive at low pH is survival at low pH in the presence pepsin.

6. A probiotic composition as in claim 1 and 4, c h a r a c t e r i z e d in that said intestinal  
30 survival property is ability to produce stress proteins.

7. A probiotic composition as in claim 6, c h a r - a c t e r i z e d in that said stress proteins cross-  
35 react with heat shock proteins.

8. A probiotic composition as in claim 1, c h a r -  
a c t e r i z e d in that said intestinal binding  
property is ability to bind to mucin.

5 9. A probiotic composition as in claim 1, c h a r -  
a c t e r i z e d in that said intestinal binding  
property is ability to bind to extracellular matrix pro-  
teins.

10 10. A probiotic composition as in claim 1, c h a r -  
a c t e r i z e d in that said intestinal binding  
property is ability to bind to glucosaminoglycans.

11. A probiotic composition as in claim 1, c h a r -  
a c t e r i z e d in that said intestinal binding  
property is ability to express cell surface hydrophobicity.

15 12. A probiotic composition as in claim 1, c h a r -  
a c t e r i z e d in that said infection protecting  
property is ability to produce bacteriocins.

13. A probiotic composition as in claim 12,  
c h a r a c t e r i z e d in that said bacteriocins have  
activity against grampositive bacteria.

20 14. A probiotic composition as in claim 12,  
c h a r a c t e r i z e d in that said bacteriocins have  
activity against gramnegative bacteria.

25 15. A probiotic composition as in claim 12,  
c h a r a c t e r i z e d in that said bacteriocins have  
activity against yeast.

16. A probiotic composition as in claim 1, c h a r -  
a c t e r i z e d in that said infection protecting  
property is ability to produce antioxidants.

30 17. A probiotic composition as in claim 1, c h a r -  
a c t e r i z e d in that said infection protecting  
property is ability to induce a pro-inflammatory cytokin  
response.

35 18. A probiotic composition as in claim 1, c h a r -  
a c t e r i z e d in that said fiber fermenting property  
is ability to ferment amylopectin and inulin.

19. Use of a lactic acid bacterial strain, selected from the group comprising *Lactobacillus plantarum* F5 (LMG P-20604), *Lactobacillus plantarum* F26 (LMG P-20605), *Lactobacillus plantarum* 2592 (LMG P-20606), *Pediococcus*  
5 *penosaceus* 16:1 (LMG P-20608), and *Leuconostoc mesenteroides* 77:1 (LMG P-20607), and *Lactobacillus plantarum* 50:1 (P-20609), alone or in combination, as a probiotic additive in food or feed.